CHAPTER 6 IDENTIFICATION OF POTENTIAL IMPROVEMENTS AND DEVELOPMENT OF ALTERNATIVE PACKAGES

After a comprehensive review of existing conditions and expected land-use growth and transportation demand by 2030, as well as input from the community and other stakeholders and the SLU Neighborhood Plan, the study team developed a list of potential improvements to reach the goals for the SLU Transportation Study.

First a list of all previously studied improvements was compiled to ensure that no potential transportation improvement would be overlooked. The study team then developed a variety of measures to mitigate the deficiencies and issues uncovered during analysis of the existing and future baseline conditions stages of the study. Again, the study team worked with SDOT and King County Metro staff, neighborhood groups and project area stakeholders to gather additional ideas and potential alternatives to address the known deficiencies and problems.

Initial Screening

During the alternatives development effort, the project team categorized the alternatives by transportation mode: auto, pedestrian, bicycle, and transit. The auto projects were then divided into short-term and/or lower cost alternatives and more long-term and/or higher cost solutions. The project team then screened this initial "long" list, to determine if each proposed improvement would be considered feasible based on engineering or cost reasons, or on the expected level of neighborhood/political opposition.

Some proposed improvements had been previously identified as infeasible in earlier studies. The project team revaluated the alternatives that were previously considered infeasible to take into account applicable SLU Transportation Study goals, neighborhood input and feedback, and any other changes that might justify re-consideration. In cases where an alternative had been ruled out due to engineering infeasibility or high cost compared to the potential benefit, the SLU study team chose to eliminate the alternative, e.g. grade separation of the I-5 ramps/Mercer Street and the Fairview Avenue intersection. Appendix B includes a full listing of the various alternatives that were considered, but deleted from further study.

The initial screening process resulted in three long-term traffic alternatives and a number of short-term traffic, pedestrian, bicycle and transit projects. The project team then attempted to further refine the long-term traffic alternatives and individual improvement projects that passed the initial screening. Some projects needed no additional analysis and others required considerable design and coordination between the project team, SDOT, and King County Metro staff. Generally, the short-term and/or low-cost traffic improvements, pedestrian improvements and bicycle improvements were relatively straightforward and did not require extensive refinement. The long-term and/or high-cost traffic improvements were generally complex and required additional traffic analysis and design work to arrive at a concept-level solution that could be evaluated.

The study team then compiled the remaining project improvements into three logical groupings, or packages of improvements, and evaluated the packages as a whole as to how well they were likely to meet the stated SLU area goals and objectives.

The three alternative scenarios carried forward for further evaluation were categorized as the Area Improvements Scenario, the Roy Street Underpass and Fairview/Valley Intersection Realignment scenario, and the Two-Way Mercer/Narrow Valley scenario. One of the primary distinguishing characteristics of these alternative scenarios is that they each include a different proposed treatment of the Mercer Corridor. The Area Improvement Scenario assumed Mercer and Valley Streets operate similar as they do today; while the other two scenarios assume changes in the configuration and operation of the Mercer Corridor. Other SLU area improvements that were compatible with or could build upon the particular Mercer Corridor solution designated were added to the alternative package. Note that some individual improvements are contained in more than one alternative package. Each alternative scenario package is described in more detail below.

Area Improvements with Existing Mercer/Valley Configuration

The Area Improvements package is shown in Figure 6.1. This scenario assumes that the existing SLU area transportation infrastructure, including the Mercer Corridor, is essentially unchanged from today. Mercer Street remains four lanes in the eastbound direction, Valley Street serves as the westbound portion of the couplet between Fairview and Westlake Avenues, and Broad Street serves as the westbound portion between Westlake and Fifth Avenues. One change, however, is that an additional crossing of Aurora Avenue is proposed at Thomas Street to provide a new connection between SLU and Seattle Center and to relieve some of the congestion on the Mercer Street/Valley Street/Broad Street system. This would also include the modification of Thomas Street from Dexter to Fairview Avenues from a two-lane cross-section to a three-lane cross-section with one travel-lane in each direction and left-turn lanes.

The major pedestrian elements of this scenario include minor improvements to sidewalks (landscaping and repair) within the existing right-of-way on both Mercer and Valley Streets, implementation of a limited Lake-to-Bay multi-purpose facility that crosses Aurora Avenue N./SR 99 using the Thomas overcrossing, and an improved pedestrian crossing to Capitol Hill at Denny. The pedestrian improvements along Mercer and Valley Streets also include signals at the Terry Avenue/Valley Street and Terry Avenue/Mercer Street intersections to facilitate crossings, landscaping, and countdown signals at all intersections.

The Lake-to-Bay Trail facility would begin at the Valley Street/Westlake Avenue intersection, heading west on a slightly modified Roy Street to the Dexter Avenue bike lanes and travel south to the proposed Thomas Street overpass. It would then continue west to Fifth Avenue N. where it would split into a walking facility that would travel around the south side of the Seattle Center campus and a bicycle facility that would travel around the north side of the campus.

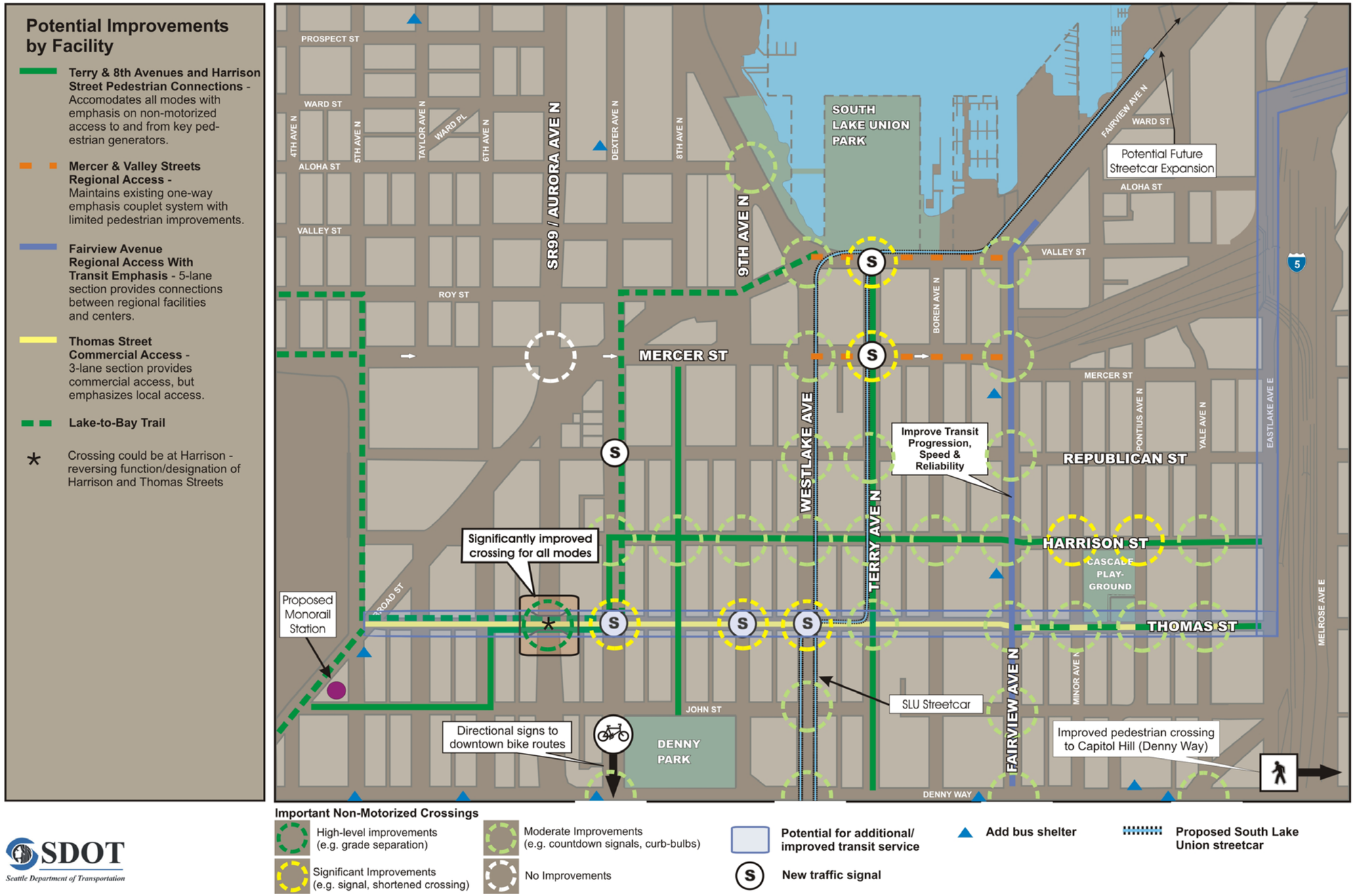


Figure 6.1: Area Improvements with Existing Mercer\Valley Scenario

The improved pedestrian crossing to Capitol Hill would utilize the Denny Way overpass of I-5 and would require the construction of a new, ten-foot sidewalk on the north side of the overpass. The Area Improvements Scenario would also include the implementation of the Terry Avenue design guidelines as development occurs, and extension of the Green Street designation on Harrison Street, providing non-motorized connections to Terry Avenue, the Thomas Street overcrossing, the Lake-to-Bay Trail, and eventually to the proposed monorail station at Fifth Avenue N. and John Street. In addition, Eighth Avenue between John and Mercer Streets, is proposed to be designated as a Green Street as well.

As can be seen in Figure 6.1, extension of the Green Street on Harrison Street includes the construction of curb bulbs and countdown signals at nearly all intersections, but also includes widening the sidewalks on Harrison Street by two feet and reducing the travel lane widths by two feet. In addition, the SLU study team is recommending the widening of sidewalks around the Cascade Playground. And finally, other intersection improvements are proposed at a number of key pedestrian crossings as noted in Figure 6.1 by the dashed circles.

The major bicycle elements include the construction of a limited Lake-to-Bay facility to improve connectivity between SLU and areas west of Aurora Avenue N. Other bicycle elements included in the Area Improvements Scenario are signage along streets commonly traveled by cyclists in the SLU neighborhood, such as on Harrison Street from Dexter Avenue N. to Eastlake Avenue E., Eastlake Avenue E. from E. Garfield Street to Denny Way, and Lakeview Boulevard from Eastlake to Belmont Avenues. In addition, the study is recommending the installation of bike route signs from the existing Dexter Avenue bike lanes to the existing Second Avenue bike lanes and from the proposed Fourth Avenue bike lanes (Center City Access Report, 2004) via Bell and Battery Streets.

The major transit elements included in the Area Improvements Scenario include the Westlake/SLU Streetcar, transit signal priority features on Fairview Avenue N., a transit queue jump on Fairview Avenue (northbound) at Harrison Street, improved transit service on Denny Way via the Route 8, and new transit service between Uptown and North Capitol Hill. The new transit route could cross Aurora Avenue N/SR 99 using Mercer Street then travel on Republican to access Eastlake Avenue and Lakeview Boulevard to north Capitol Hill.

Roy Street Undercrossing and Realigned Fairview/Valley Intersection

The Roy Street Undercrossing scenario (see Figure 6.2) maintains the existing Mercer/Valley couplet system between Fairview and Westlake Avenues and extends the westbound Valley couplet along Roy Street from Westlake Avenue, under Aurora Avenue, to connect to the existing westbound Roy system at Fifth Avenue N. The westbound movement of traffic from I-5 is further improved by realigning the Fairview Avenue N./Valley Street intersection to the west and reducing the sharp right turn onto Fairview Avenue from the off-ramp and reducing the angle of the left turn onto westbound Valley Street from northbound Fairview Avenue.

The Thomas Street crossing of Aurora Avenue is also proposed under this scenario, again to serve as an additional crossing of Aurora Avenue and better connect SLU to the Seattle Center and neighborhoods to the west. This also includes the improvement of Thomas Street from a two-lane to a three-lane cross section from Dexter Avenue to Fairview Avenue.

The major pedestrian elements included in the Roy Street Undercrossing scenario are the same as those included and discussed for the Area Improvement scenario: minor pedestrian improvements on both Mercer and Valley Streets, construction of the Lake-to-Bay trail, an improved pedestrian crossing along Denny Way to Capitol Hill, implementation of the Terry Avenue design guidelines, extension of the Green Street designation on Harrison Street, Green Street designation of Eighth Avenue N between John and Mercer Streets, wider sidewalks around the Cascade Playground and other intersection improvements at key pedestrian crossings.

While the pedestrian elements proposed as part of the Roy Street Undercrossing scenario are the same as those for the Area Improvements Scenario, the route of the Lake-to-Bay Trail would be modified. Again, the trail would start at the Valley Street/Westlake Avenue intersection, would head west on a reconstructed Roy Street, and travel westbound under Aurora Avenue to Fifth Avenue N. where the bike route would continue westbound around the north side of Seattle Center and the pedestrian/slow bike facility would travel south on Fifth Avenue N. around the south side of Seattle Center.

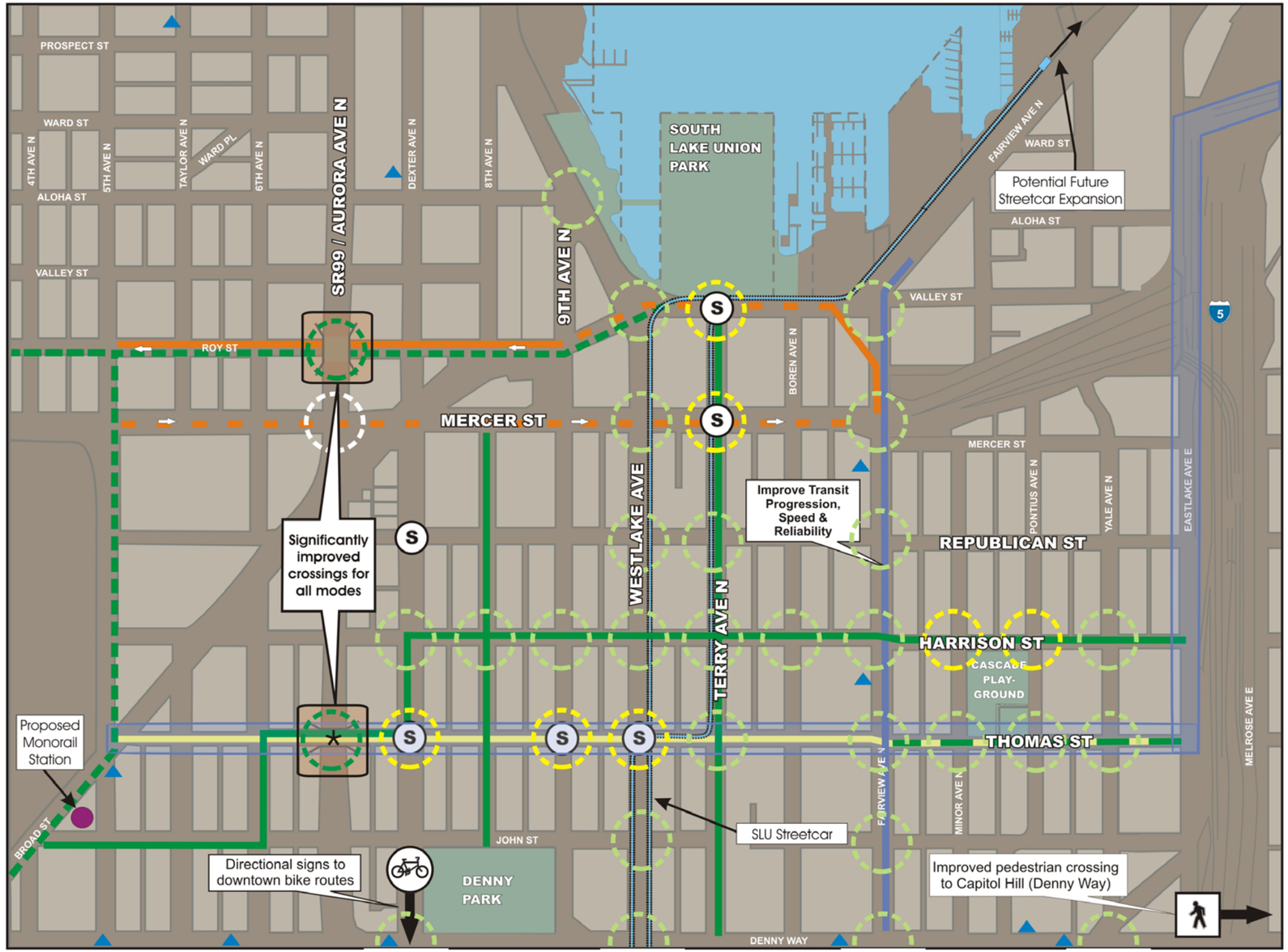
The major bicycle elements included in the Roy Street Undercrossing scenario are the same as those discussed for the Area Improvement scenario: construction of the Lake-to-Bay trail, bicycle route and/or way finding signage of streets commonly traveled by cyclists, signed bicycle routes on Eastlake Avenue E. and Lakeview Boulevard, and bicycle way finding signing between the end of the Dexter bike lanes at Denny Way to the Second Avenue bike lake and the proposed Fourth Avenue bike lanes.

The major transit elements included in the Roy Street Undercrossing scenario are the same as those discussed for the Area Improvement scenario: construction of the Westlake/SLU Streetcar, the implementation of transit signal priority features on Fairview Avenue N., the implementation of a transit queue jump facility on northbound Fairview Avenue N. at Harrison Street, improved transit service on Denny Way, and proposed new transit service to North Capitol Hill via Eastlake Avenue and Lakeview Boulevard.

In addition to the above noted transit improvements, the construction of the Roy Street underpass provides a more direct westbound route across Aurora Avenue as compared to the existing Broad Street configuration. This new route makes the likelihood of new or modified east/west transit service in north SLU possible. However, congestion on Mercer Street is still expected to hamper the implementation of new or modified east/west service in the northern area of SLU, as it is the most logical corresponding eastbound route.

Potential Improvements by Facility

- **Terry & 8th Avenue and Harrison Street Pedestrian Connections** - Accomodates all modes with emphasis on non-motorized access to and from key pedestrian generators.
- **Mercer & Valley Streets Regional Access** - Maintains existing one-way emphasis couplet system with limited pedestrian improvements.
- **Valley/Fairview Re-Alignment & Roy Street Underpass Regional Access** - Modifies Valley/Fairview intersection, modifies Roy Street between 9th and 5th Avenues and provides a westbound underpass.
- **Fairview Avenue Regional Access With Transit Emphasis** - 5-lane section provides connections between regional facilities and centers.
- **Thomas Street Commercial Access** - 3-lane section provides commercial access, but emphasizes local access.
- **Lake-to-Bay Trail**
- * Crossing could be at Harrison - reversing function/designation of Harrison and Thomas Streets



Important Non-Motorized Crossings

- High-level improvements (e.g. grade separation)
- Significant Improvements (e.g. signal, shortened crossing)
- Moderate Improvements (e.g. countdown signals, curb-bulbs)
- No Improvements
- **Potential for additional/ improved transit service**
- **New traffic signal**
- **Add bus shelter**
- **Proposed South Lake Union streetcar**

SDOT Seattle Department of Transportation

Figure 6.2: Roy Street Undercrossing & Valley/Fairview Intersection Re-Alignment Scenario

Two-Way Mercer Corridor

The Two-way Mercer Corridor Scenario (see Figure 6.3) eliminates the existing Mercer and Valley/Broad Street couplet by widening Mercer Street to accommodate three lanes of traffic in the westbound direction, as well as the existing four lanes in the eastbound direction between Fairview and Westlake Avenues. West of Westlake Avenue the typical section for Mercer Street would be reduced by one lane in the eastbound direction, providing three lanes in each direction between Westlake and Fifth Avenues N. While this study did not include modifying Mercer Street west of Fifth Avenue to a two-way street, it is compatible with such an option. It is anticipated that further study of the two-way Mercer Street west of Fifth Avenue will be conducted in conjunction with the Mercer Corridor Project EIS.

Under this scenario, Valley Street would be narrowed to a three-lane typical section, one travel lane in each direction with left-turn lanes in the center, because nearly all of the westbound traffic from I-5 would be carried on Mercer Street. It is expected that the traffic most likely to continue to use Valley Street under this scenario would be the "around-the-lake" traffic (i.e., southbound Fairview Avenue N. to westbound Valley Street to northbound Westlake Avenue N., and vice-versa). As a result of the Valley Street origin-destination study (see Chapter 4), it was determined that the volume of this traffic would be of such levels as to be satisfactorily accommodated by one lane in each direction. The widened two-way Mercer and narrowed Valley scenario also allows for the modification of Fairview Avenue North. North of the Valley Street intersection, Fairview Avenue north is proposed to be reduced from two travel lanes in each direction with a center turn-lane to one travel-lane in each direction, a center turn-lane, and bicycle lanes in each direction.

Unlike the other two improvement packages, the two-way Mercer scenario includes the proposal to change operations of the existing Westlake and Ninth Avenue one-way couplet to two-way operations on both streets. Westlake Avenue is proposed to have two travel-lanes in each direction with left-turn pockets at Republican, Mercer and Valley Streets. Parking on both sides of Westlake Avenue would be maintained between Denny Way and Republican Street. Ninth Avenue is proposed to be reduced from three southbound travel lanes to one-lane in each direction and left-turn pockets. Ninth Avenue is proposed to be the "working" street providing local access and a north-south alternative to Westlake. Parking on both sides of Ninth Avenue would be maintained under the new narrower cross-section.

As included in the other two improvement packages, the two-way Mercer Street scenario also includes the Thomas Street overcrossing of Aurora Avenue and the corresponding change from a two-lane cross-section to a three-lane cross-section between Dexter and Fairview Avenues.

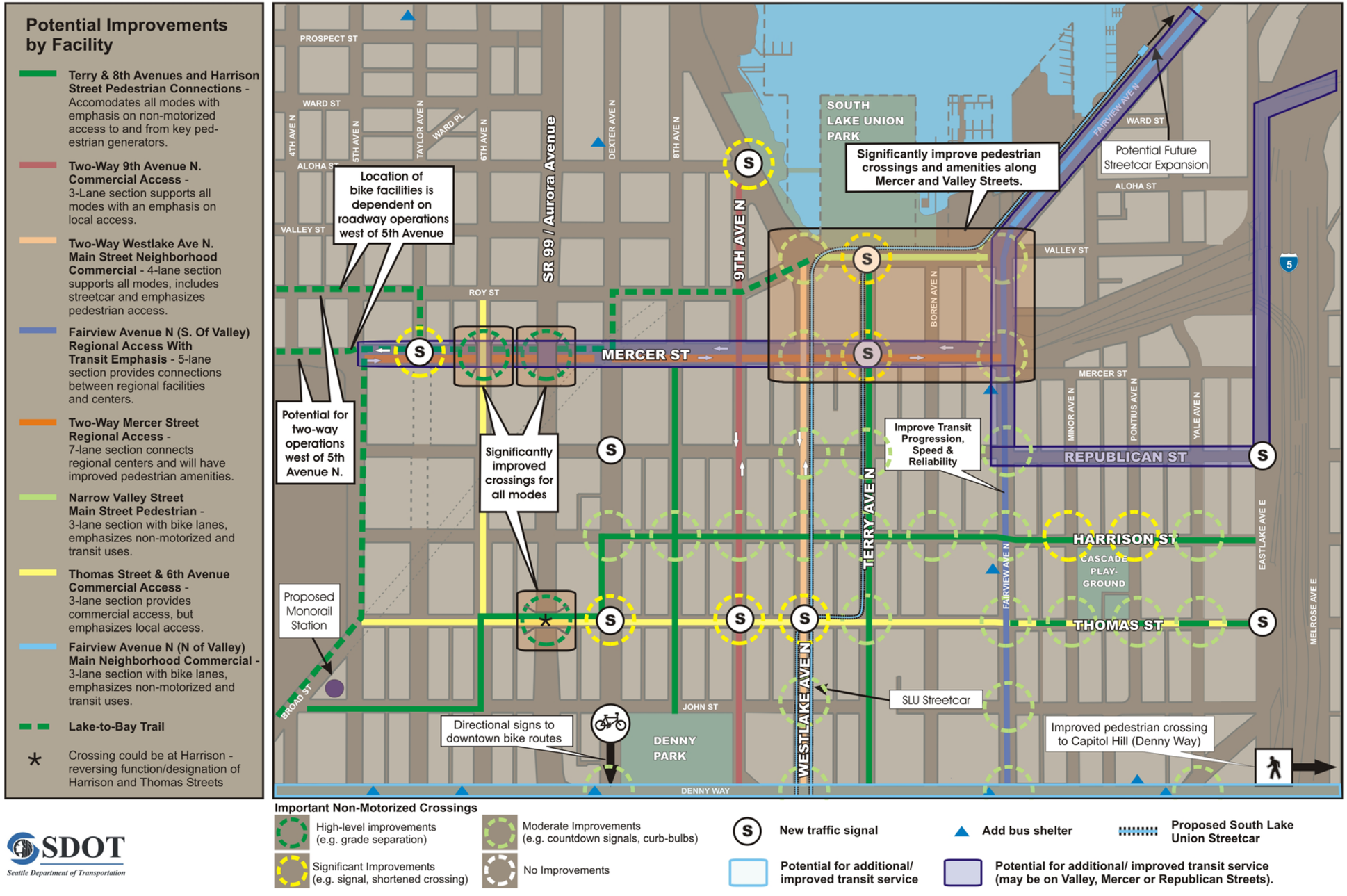


Figure 6.3: Two-Way Mercer Corridor Scenario

The major pedestrian elements included in the Two-Way Mercer scenario are the same as those discussed for the Area Improvement and Roy Street Undercrossing scenarios. However, the Two-Way Mercer scenario allows for additional and significant changes to the streetscape and pedestrian amenities on both Valley and Mercer Streets, rather than the limited improvements under the Area Improvements and the Roy Underpass scenarios.

Under the Two-Way Mercer scenario, both Mercer and Valley Streets would be completely reconstructed to include the following pedestrian facilities and amenities: a 16' sidewalk on the south side of both Mercer and Valley Street, a 21-foot sidewalk on the north side of Mercer Street, a wide plaza linking to the proposed SLU Park that is integrated with streetcar facilities on the north side of Valley Street. Additionally, Mercer Street is proposed to include a 21-foot median between the eastbound and westbound lanes, as well as street trees and on-street parking (which also provides a pedestrian buffer) on both sides of Mercer Street. A parking lane is proposed on the south side of Valley Street, providing a buffer for pedestrians between the travel lane and sidewalk.

As with the other scenarios the Lake-to-Bay Trail route would be slightly modified based on the proposed transportation infrastructure. Under the Two-Way Mercer scenario the trail would again start at the Valley/Westlake intersection, head west on a reconstructed Roy Street, connect with the Dexter Avenue bike lanes and the widened Mercer Street to cross under Aurora Avenue heading westbound to Fifth Avenue N. At Fifth Avenue N. an on-street bike route could continue westbound around the north side of Seattle Center (possibly using Roy and Mercer Streets) and the pedestrian/slow bike facility would travel south on Fifth Avenue N. around the south side of Seattle Center.

The major bicycle elements included in the Two-Way Mercer scenario are the same as those discussed for the Area Improvement and Roy Street Undercrossing scenarios. However, as a result of the reduced traffic volumes on Valley Street (due to the widening and two-way operations on Mercer Street), bike lanes in both the eastbound and westbound direction are included on Valley Street between Fairview and Westlake Avenues, as well as on a reconstructed Roy Street between Westlake and Dexter Avenues. The reduction of Fairview Avenue N. from five travel lanes to three provides room within the curb line to provide bike lanes in each direction between Valley Street and Eastlake Avenue. These bike lanes would connect to the new bike lanes on Valley Street, the existing Westlake Trail multi-use facility, the new bike lanes on Roy Street, the Lake-to-Bay Trail facility, and the Dexter Avenue bicycle lanes.

The major transit elements included in the Two-Way Mercer scenario are the same as those discussed for the Area Improvement and Roy Street Undercrossing scenarios. However, the implementation of a two-way Mercer Street allows more east/west transit possibilities in the north part of the SLU neighborhood. More possibilities are available because transit can use the widened Mercer underpass to cross Aurora Avenue and then continue on the two-way Mercer or move to either Valley Street or Republican Street to travel in either the east or west directions. These alternative routes have the advantage of consolidating a given transit route on one street, making the system easier for riders to understand.

A new east/west transit route between Uptown and North Capitol Hill could use the Mercer Street underpass then continuing on Republican Street through SLU to Eastlake Avenue E and then to Lakeview Boulevard and up Belmont Street to a termination point near Roy Street and

Broadway Avenue. A new or modified Route 74 could use the Mercer Street underpass and then travel on Roy and Valley Streets to Fairview Avenue N. to Eastlake and the University District. Both of these routes would provide needed east/west transit service through the northern part of SLU, just one block off of Mercer Street, stopping at important pedestrian connections such as Terry Avenue, the SLU Park, numerous employers, and the Westlake/SLU streetcar route.